

**THE WISDOM GLOBAL SCHOOL**

**SYLLABUS BIFURCATION**

**GRADE 12**

**SUBJECT:- PHYSICS**

**NAME OF BOOK: S.L ARORA/NCERT**

**YEAR 2024-25**

**NAME OF THE TEACHER:- MR. SUMIT KUMAR PANDEY**

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
1	S.L.ARORA	APRIL	1	ELECTRIC FIELD AND CHARGES	Electric charges its properties & Conservation of charges	1			<a href="https://video.wixstatic.com/video/f29914_07a3e47571af47fda8e575630f6650bf/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_07a3e47571af47fda8e575630f6650bf/720p/mp4/file.mp4</a>	
					Coulomb's law-force between two-point charges,	1			<a href="https://video.wixstatic.com/video/f29914_a7c4210ab27947b792e380fdc03cf9b4/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_a7c4210ab27947b792e380fdc03cf9b4/720p/mp4/file.mp4</a>	
					forces between multiple charges; superposition principle and continuous charge distribution.	1				
					Electric field,electric field lines	1			YES	
					Electric field due to a point charge,	1				
					Electric dipole,	1				
					Electric field due to a dipole on axial point,	1				
					Electric field due to a dipole on equatorial point	1				
					Torque on a dipole in uniform electric field.	1				
					Electric flux,	1			YES	
					statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).	2				
1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.	1									
1. To find resistance of a given wire / standard resistor using metre bridge.	1									

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS	
			2	Electrostatic Potential and Capacitance	Electric potential, potential difference,	1			<a href="https://video.wixstatic.com/video/f29914_bede6ee61b91422db86ccb96080c4799/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_bede6ee61b91422db86ccb96080c4799/720p/mp4/file.mp4</a>		
						electric potential due to a point charge,	1				
						A dipole and system of charges; equipotential surfaces	1				
						Electrical potential energy of a system of two-point charges	1				
						Electric dipole in an electrostatic field.	1				
						Conductors and insulators, ,	1				
						free charges and bound charges inside a conductor.	1				
						Dielectrics and electric polarization,	1				
						Capacitors and capacitance, combination of capacitors in series and in parallel,	2				YES
						Capacitance of a parallel plate capacitor with and without dielectric medium between the plates	2				
				Energy stored in a capacitor	1						
					Electric current,,	1			<a href="https://video.wixstatic.com/video/f29914_b99b912f9a0e45bda92157d97e157d5c/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_b99b912f9a0e45bda92157d97e157d5c/720p/mp4/file.mp4</a>		
						flow of electric charges in a metallic conductor	1	To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.			
						drift velocity,	1				
						mobility and their relation with electric current;	1				
						Ohm's law, V-I characteristics (linear and non-linear).	1				
					Electrical energy and power	1	To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.				

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
2	S.L.ARORA	MAY	3	Current Electricity	electrical resistivity and conductivity, temperature dependence of resistance,	1	To assemble the components of a given electrical circuit.			
					Internal resistance of a cell, potential difference and emf of a cell,	1	To study the variation in potential drop with length of a wire for a steady current.			
					combination of cells in series and in parallel,	1	To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.			
					Kirchhoff's rules,	1				
					Wheatstone bridge.	1				YES
					1. To verify the laws of combination (series) of resistances using a metre bridge. OR To verify the laws of combination (parallel) of resistances using a metre bridge.	1				
					1. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.	1				
					Concept of magnetic field, Oersted's experiment.	1			<a href="https://video.wixstatic.com/video/f29914_7552d908a74d4392b6ef3084f39cedcd/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_7552d908a74d4392b6ef3084f39cedcd/720p/mp4/file.mp4</a>	
					Biot - Savart law and its application to current carrying circular loop.	1			<a href="https://video.wixstatic.com/video/f29914_6fb01104726b4dc78cfe8c28decebade/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_6fb01104726b4dc78cfe8c28decebade/720p/mp4/file.mp4</a>	
					Ampere's law and its applications to infinitely long straight wire.	1				

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
3	S.L.ARORA	JUNE	4	<b>Moving Charges and Magnetism</b>	Straight solenoid ,force on a moving charge in uniform magnetic and electric fields.	1				
					Force on a current-carrying conductor in a uniform magnetic field	1				
					force between two parallel current-carrying conductors-definition of ampere	1				
					torque experienced by a current loop in uniform magnetic field;	1				
					Current loop as a magnetic dipole and its magnetic dipole moment,	1				
					moving coil galvanometerits current sensitivity and conversion to ammeter and voltmeter.	1				YES
					1. To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same. OR To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.	1				
			5	<b>Magnetism and Matter</b>	Bar magnet, bar magnet as an equivalent solenoid	1			<a href="https://video.wixstatic.com/video/f29914_748da3f4e92045fcbd1cab5039987cd7/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_748da3f4e92045fcbd1cab5039987cd7/720p/mp4/file.mp4</a>	
					magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis	2				
					torque on a magnetic dipole (bar magnet) in a uniform magnetic field	1				
					magnetic field lines.	1				
					Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples,	1				
			Magnetization of materials, effect of temperature on magnetic properties	1						
6			<b>Electromagnetic Induction</b>	Electromagnetic induction	1			<a href="https://video.wixstatic.com/video/f29914_3dc9e99284a44ad488514a4373333c3a/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_3dc9e99284a44ad488514a4373333c3a/720p/mp4/file.mp4</a>		

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
4	S.L.ARORA	JULY			Faraday's laws, induced EMF and current	1				
					Lenz's Law, Self and mutual induction.	1				
			7	Alternating Current	Alternating currents, peak and RMS value of alternating current/voltage	2			<a href="https://video.wixstatic.com/video/f29914_e893413129664e899504661103c47efe/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_e893413129664e899504661103c47efe/720p/mp4/file.mp4</a>	
					reactance and impedance; LCR series circuit	1	To measure the resistance and impedance of an inductor with or without iron core.	<a href="https://video.wixstatic.com/video/f29914_74c56cce8aae4d9f8a75776b854c3e02/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_74c56cce8aae4d9f8a75776b854c3e02/720p/mp4/file.mp4</a>		
					resonance	1				
					power in AC circuits, power factor, wattless current	1				
					AC generator	1			YES	
					Transformer.				YES	
					8	Electromagnetic Waves	Basic idea of displacement current	1		<a href="https://video.wixstatic.com/video/f29914_2b70009ab6374d85aeca999d61e67e41/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_2b70009ab6374d85aeca999d61e67e41/720p/mp4/file.mp4</a>
			Electromagnetic waves, their characteristics, their transverse nature	1						
			Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.	2					YES	
			1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.	1						
			1. To find the focal length of a convex mirror, using a convex lens.	1						
			1. To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v.	1						
					Reflection of light	1		<a href="https://video.wixstatic.com/video/f29914_c41991e0313546d4a30c55f73f27a675/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_c41991e0313546d4a30c55f73f27a675/720p/mp4/file.mp4</a>		

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
5	S.L.ARORA	AUGUST	9	Ray Optics and Optical Instruments	spherical mirrors & mirror formula	2			<a href="https://video.wixstatic.com/video/f29914_d314a5267144434399f857aaedc40f10/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_d314a5267144434399f857aaedc40f10/720p/mp4/file.mp4</a>	
					refraction of light	1				
					total internal reflection and optical fibers	1			YES	
					refraction at spherical surfaces	2	To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.			
					lenses, thin lens formula,	1				
					lens maker's formula,	2	To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).			
					magnification, power of a lens,	1				
					combination of thin lenses in contact,	1	To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.			
					refraction of light through a prism.	1				
					Microscopes	2			YES	
					astronomical telescopes	2			YES	
					To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.	1				
1. To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.	1									

MID-TERM EXAMINATION

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS
6	S.L.ARORA	SEPTEMBER	10	Wave Optics	Wave front and Huygen's principle,	1			<a href="https://video.wixstatic.com/video/f29914_e45458bffbac4f53ac9a4ee4b039a877/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_e45458bffbac4f53ac9a4ee4b039a877/720p/mp4/file.mp4</a>	
					reflection and refraction of plane wave at a plane surface using wave fronts.& Proof of laws of reflection and refraction using Huygen's principle. Interference	2			<a href="https://video.wixstatic.com/video/f29914_3ffe28c792504c95a8241e18714b85a8/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_3ffe28c792504c95a8241e18714b85a8/720p/mp4/file.mp4</a>	
					Young's double slit experiment and expression for fringe width	1				
					coherent sources and sustained interference of light,	1				
					diffraction due to a single slit, width of central maxima	2	To observe diffraction of light due to a thin slit.			
			11	Dual Nature of Radiation and Matter	Dual nature of radiation, Photoelectric effect,	1			<a href="https://video.wixstatic.com/video/f29914_eff2e009e928495383680f6ed19571dd/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_eff2e009e928495383680f6ed19571dd/720p/mp4/file.mp4</a>	
					Hertz and Lenard's observations	1				
					Einstein's photoelectric equation-particle nature of light.	1	To study effect of intensity of light (by varying distance of the source) on an LDR.			
					Experimental study of photoelectric effect	1				
			12	Atoms	Matter waves-wave nature of particles	1				
					de-Broglie relation	1				
					Alpha-particle scattering experiment	1			<a href="https://video.wixstatic.com/video/f29914_5f5dbd4a0c574a33b9903741c2eac323/720p/mp4/file.mp4">https://video.wixstatic.com/video/f29914_5f5dbd4a0c574a33b9903741c2eac323/720p/mp4/file.mp4</a>	
				Rutherford's model of atom;	1				YES	

S.NO	BOOK NAME	MONTH	CHAPTER NUMBER	CHAPTER NAME	SUB-TOPICS	NO. OF DAYS REQUIRED	ACTIVITY	MATERIAL REQUIRED (IF ANY)	ANIMATED VIDEO LINK	CHARTS		
7	S.L.ARORA	OCTOBER			Bohr model of hydrogen atom, Expression for radius of nth possible orbit,	1						
					velocity and energy of electron in his orbit	1						
					hydrogen line spectra	1						
			13	Nuclei	Composition and size of nucleus, nuclear force	1				<a href="https://video.wixstatic.com/video/f29914_c672dcf2739946e891cb8a7232268742/720p/mp4/file.e.mp4">https://video.wixstatic.com/video/f29914_c672dcf2739946e891cb8a7232268742/720p/mp4/file.e.mp4</a>		
					Mass-energy relation,	1						
					mass defect; binding energy per nucleon and its variation with mass number	1						
							nuclear fission, nuclear fusion.	1				
			14	<b>Semiconductor Electronics: Materials, Devices and Simple Circuits</b>	Energy bands in conductors, semiconductors and insulators	1	To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.		<a href="https://video.wixstatic.com/video/f29914_dab0cf669b664c53b681584471a1ceed/720p/mp4/file.e.mp4">https://video.wixstatic.com/video/f29914_dab0cf669b664c53b681584471a1ceed/720p/mp4/file.e.mp4</a>	<u>YES</u>		
					intrinsic and extrinsic semiconductors	1	Use of multimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.		<a href="https://video.wixstatic.com/video/f29914_04fa0489b88f4e5ca953a6278cafaf5e/720p/mp4/file.e.mp4">https://video.wixstatic.com/video/f29914_04fa0489b88f4e5ca953a6278cafaf5e/720p/mp4/file.e.mp4</a>			
					p and n type, p-n junction	1						
semiconductor diode - I-V characteristics in forward and reverse bias,	1											
application of junction diode -diode as a rectifier.	2											
8		NOVEMBER			Chapterwise revision and numerical discussion	20						
9		DECEMBER			PRE-BOARD EXAMINATION / REVISION							
10		JANUARY			PRE-BOARD EXAMINATION / REVISION							
11		FEBRUARY			EXTERNAL PRACTICAL EXAMINATIONS							
ANNUAL ASSESSMENT												